

Post WWII Sun-Earth Research in Boulder (or How NOAA got to Boulder)

Joe Bassi

Assistant Professor

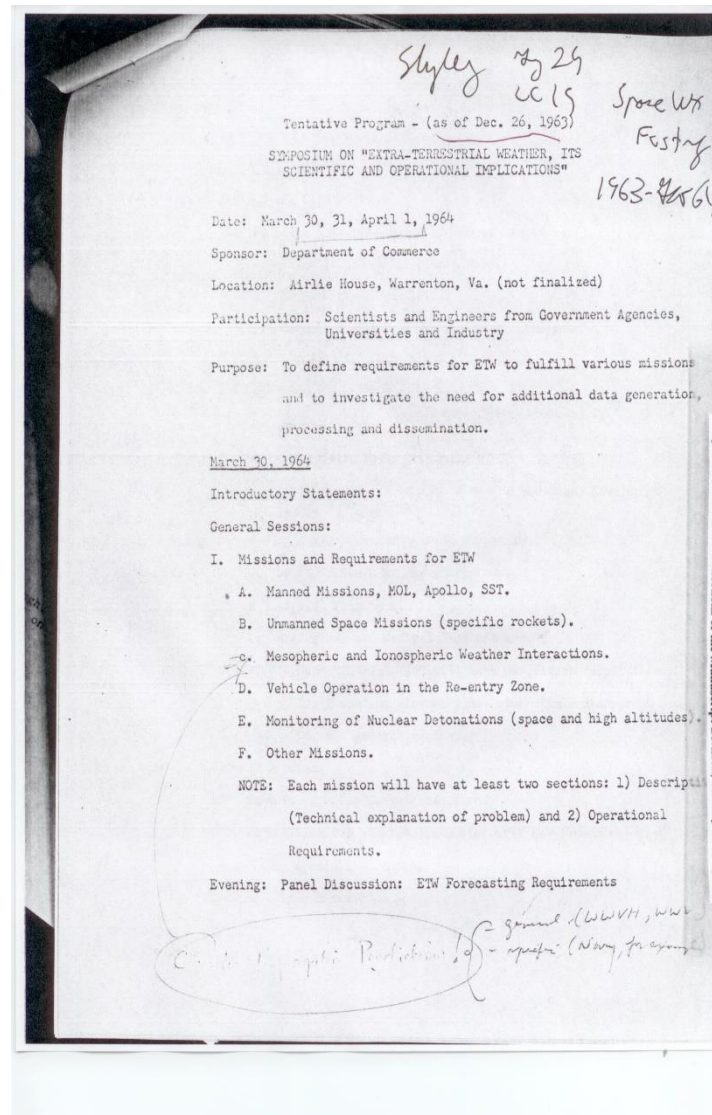
Department of Social Sciences and Economics

College of Arts and Sciences

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THE FIRST "Space Weather Week" (1964)--It was "extra-terrestrial weather" back then!



The Big Picture:

- Why is “Boulder” (ie, sun-earth science) here?
--Went from “scientific Siberia” to
“AstroBoulder” in about 15 years
--
- What does this show us about changes in US science funding from ‘30s to ‘60s?
- Why is SWPC (and NOAA) here?
- Why is Sac Peak, well, at Sac Peak?

How do Scientific “peaks” get built?

“To Make the Peaks Higher” (Wickliffe Rose, Rockefeller Foundation)



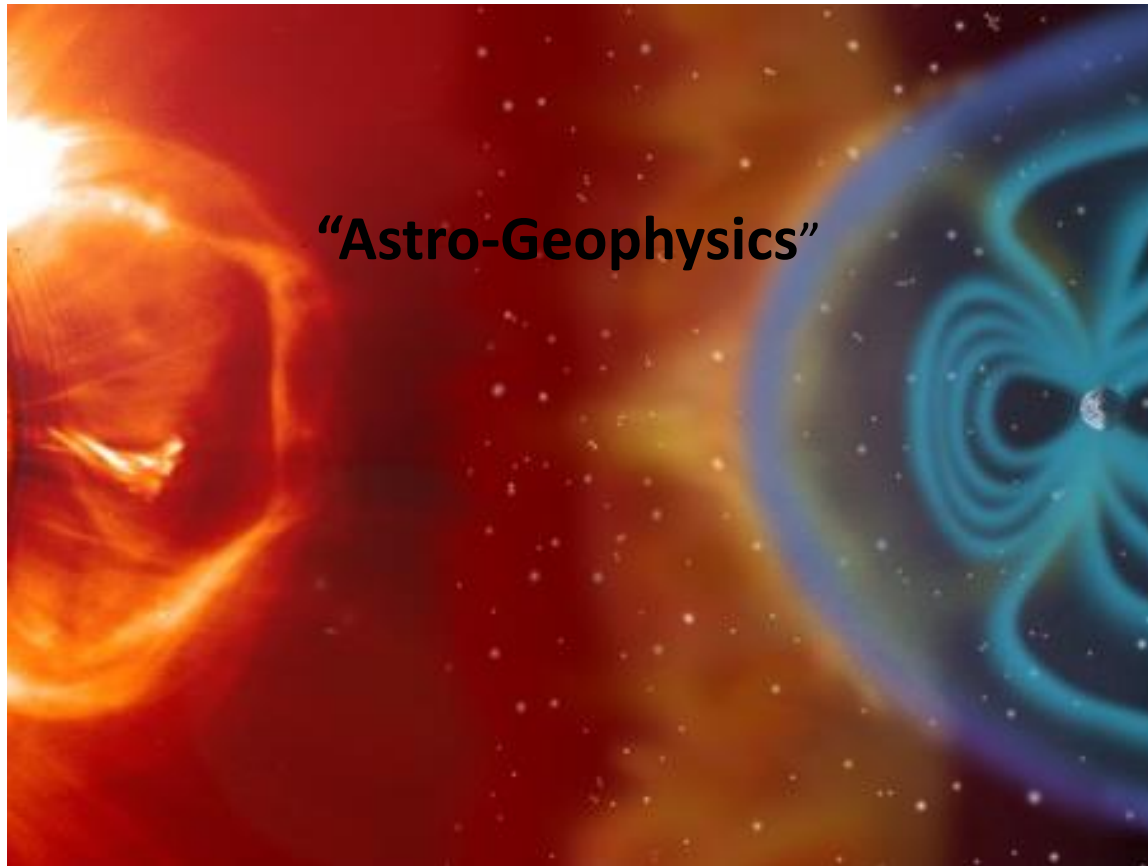
Harvard Astronomer Walt Roberts
(1915-1992)

(Student of Donald Menzel and Harlow Shapley;
friend of Alan Shapley)



Being an Astronomer's wife, c. 1940





The Sun-Earth Connection

Roberts:

“Sun-Weather Connection” used to make astronomy “applied”
and therefore to generate funding from private donors!

The Problem: How to make esoteric subject (astrophysics) practical to create a “demand and constituency”?

Rhetorical Strategy: Link research to day-to-day concerns that “concerns everyone”, in common language

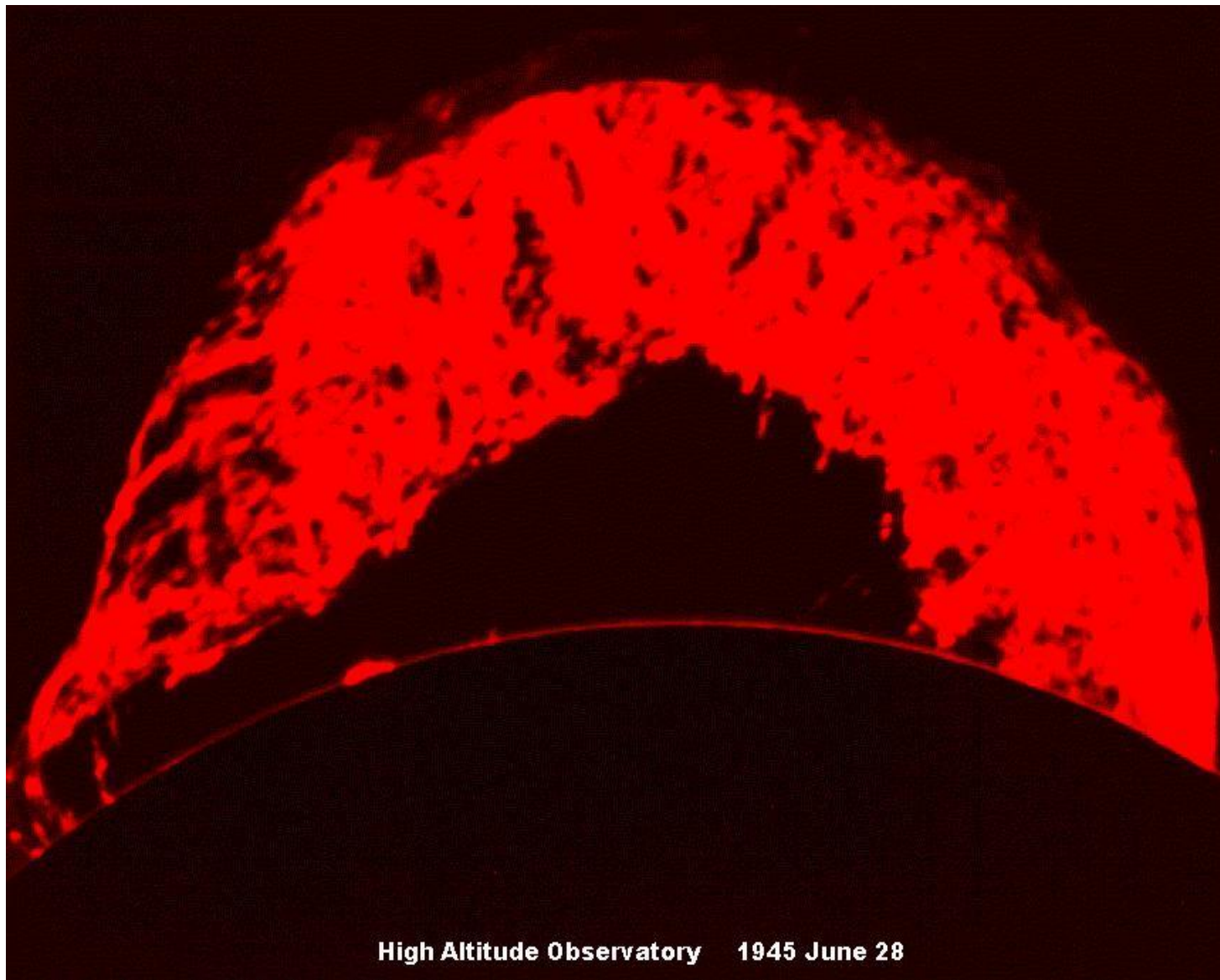
Means: Sun-weather connection

The Pitch:

“From researches of this sort...will come information of vast importance...to climatology and weather forecasting if present indications are borne out by future developments.” Walter Roberts

Results:

airlines, aviation companies , paper mills, distilleries, camping equipment manufactures, agricultural enterprises (eg, sugar)



High Altitude Observatory 1945 June 28

Importance of Solar Observations in WWII

- Pre-WWII discovered radio propagation influenced by solar activity (Waldmeier)
- Germans/Luftwaffe monitoring the sun (Plendl, Kiepenheuer, etc)
 - spectroheliograph, photometers, coronagraphs
 - V-2s w/Von Braun
- Allies as well
 - Interservice Radio Propagation Lab (IRPL)

Harvard College's High Altitude Observatory
(During WWII provides key info on coronal green line toIRPL)



Why come down from the mountain?



But, “Astro-Boulder” almost did not happen!



White Sands from Sac Peak area (Marcus O'Day/Don Menzel)



Sacramento Peak Observatory. C. 1948



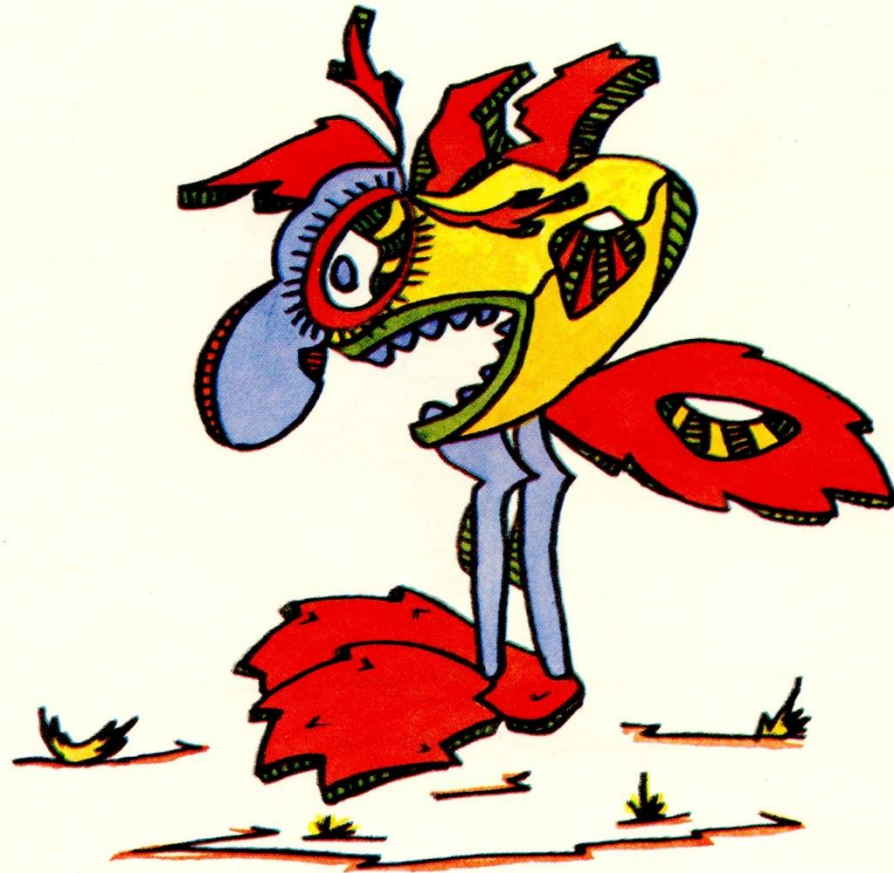
Why Boulder then?

“A Scientific Siberia” (A. Shapley)

- National Bureau of Standards/Central Radio Prop Lab (formerly IRPL in WWII)
- Uses High Altitude Obs/Roberts Coronal data
- Must (Maybe?) Relocate out of DC (Early Cold War concerns)
- Alan Shapley (son of Harlow at Harvard) is a member of CRPL technical/management staff
- Roberts/Menzel/Shapley nexus
- Sen. “Big Ed” Johnson!

UCAR Archives





11. *Howling Martian*. In every group of individuals—Martians as well as Earthlings—you will find those who enjoy life in a series of protests. This howling creature is just about to encounter an American astronaut, recently landed on Mars. He is clearly saying: “Yankee! Go home!”

Central Radio Prop Lab
(Alan Shapley)
UCAR Archives



Edwin “Big Ed” Johnson



A “Selection Process”

- CRPL forms a site team (Alan Shapley, among others is on it)
---”If truth be known, Boulder....” (Shapley)
- Finalists: Palo Alto, Charlottesville, Boulder
- “The Deciding Factor”: Offer of land to the US Government
- Boulder “picked” by Sec Of Commerce in Dec, 1949

How to get the money? (\$70K)

- Citizens of Boulder to contribute!
- Chamber of Commerce takes the lead in a fund drive
- Over \$80K collected; hundreds of businesses and citizens donate (Pop 20K in 1950)
- What is the pitch that is so successful?

4/5/50 5 April 1950

NOW YOU CAN BUY PROSPERITY INSURANCE


You probably now have health, accident and life insurance. You also probably have car insurance, fire insurance, wind insurance — perhaps hail, theft, public liability and other forms of insurance protection.

BUT HOW ABOUT YOUR BUSINESS?

Will you have the customers and clients next year you have now? Will there be as much money circulating in the community next year? — and the next? — as there is today? Will your property be worth as much next year as it is today? Don't you wish you knew? Of course no one can GUARANTEE what conditions will be like in the future but there is a way that you can HELP keep your business prosperous and that is

**Help Bring the U.S. Bureau of Standards
Radio Laboratory to Boulder**
This Multi-Million Dollar Project Means

BOULDER PROSPERITY INSURANCE



With a Total Premium Cost of \$70,000
It Pays An Annual Dividend of a \$2,000,000 Payroll!
Can You Afford Not To Have This Protection?

Pay Your Share of the Premium — TODAY!
Collect Your Share of the Dividends — TOMORROW!

Buy Insurance!

For Every
\$100
Invested in This
Campaign

will be spent in
construction costs
of Laboratory

**PROSPERITY
INSURANCE
POLICY**
issued by
**The Boulder
Chamber of Commerce**
Boulder, Colo.

insuring to the community the
many benefits to result from
the establishment in Boulder
of the
U. S. Bureau of Standards
Central Radio Propagation
Laboratory

Premium for Completely Paid-up Policy
\$70,000.00

Annual Dividend: \$2,000,000 Payroll
plus extra dividends of construction and
maintenance expenditures, publicity,
cultural benefits, etc.

Cumulative Benefits
Annual Premiums
Fully Participating

For Every
\$100
Invested in This
Campaign

The Community will
annually get back
\$28⁵⁰
in new payroll

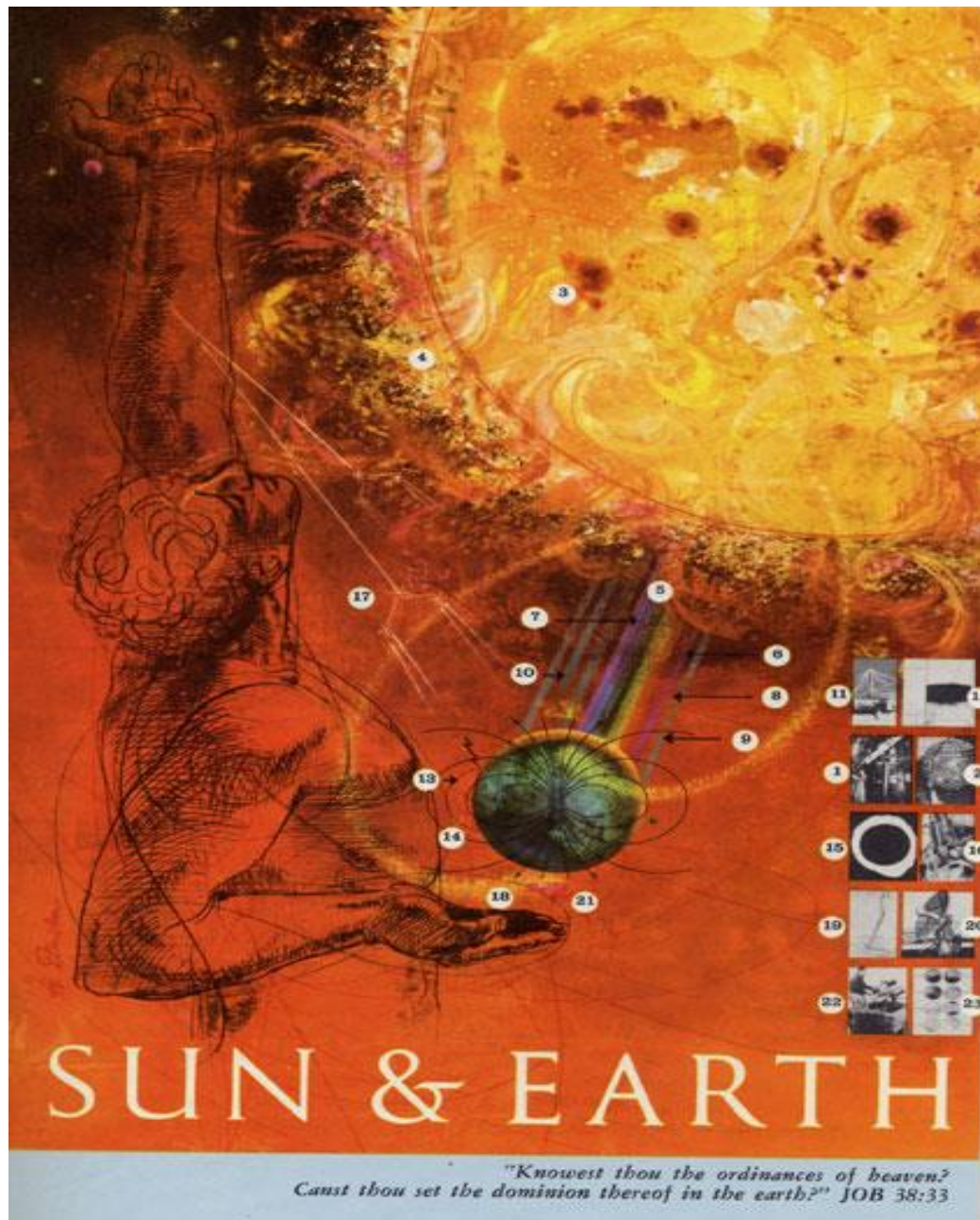
BHS 358 B169 F12

NBS Labs, Sept 1954



NBS/CRPL Opening Crowd





SUN & EARTH

*"Knowest thou the ordinances of heaven?
Canst thou set the dominion thereof in the earth?" JOB 38:33*

Sydney Chapman



(NATIONAL CENTER FOR ATMOSPHERIC RESEARCH)
BLUE LINE AMENDMENT TOMORROW!

BLUE LINE AMENDMENT TOMORROW!

- For these reasons the following Boulder Citizens have endorsed the passage of the Blue Line Amendment and have volunteered to the Citizen Committee the use of their names in support of a favorable vote.

THE ABOVE ARE ONLY A FEW OF THE BOULDER CITIZENS WHO URGE YOU TO

Vote FOR Amendment No. 1-Tomorrow

CALL HI 2-2242 **KBOL** CALL HI 2-2242
7:00 to 8:00 a.m. TONIGHT

Don Beason, Chairman

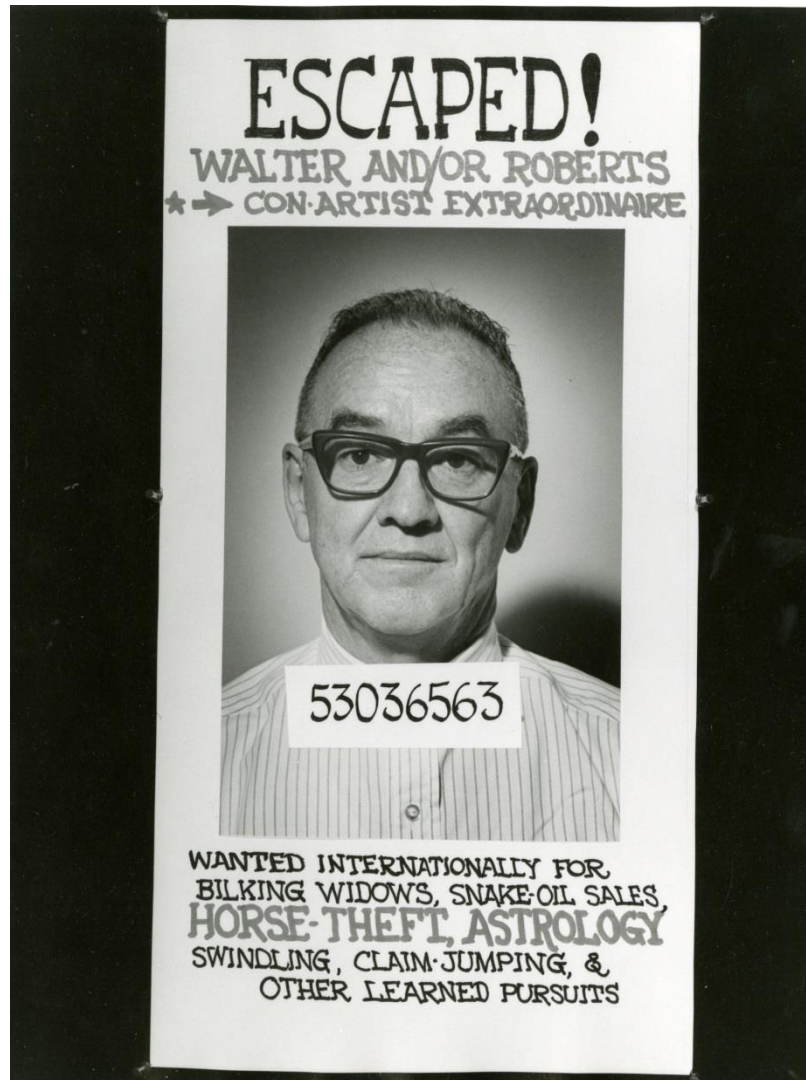
UCAR/NCAR Today



The Last Pieces

- In 1965, ESSA Created
 - CRPL moves from NBS to ESSA
- 1970, NOAA created from ESSA

Postscript: "Sun-weather connection" science still controversial



Learmonth Solar Observatory, circa 1980
(back of the Outback)

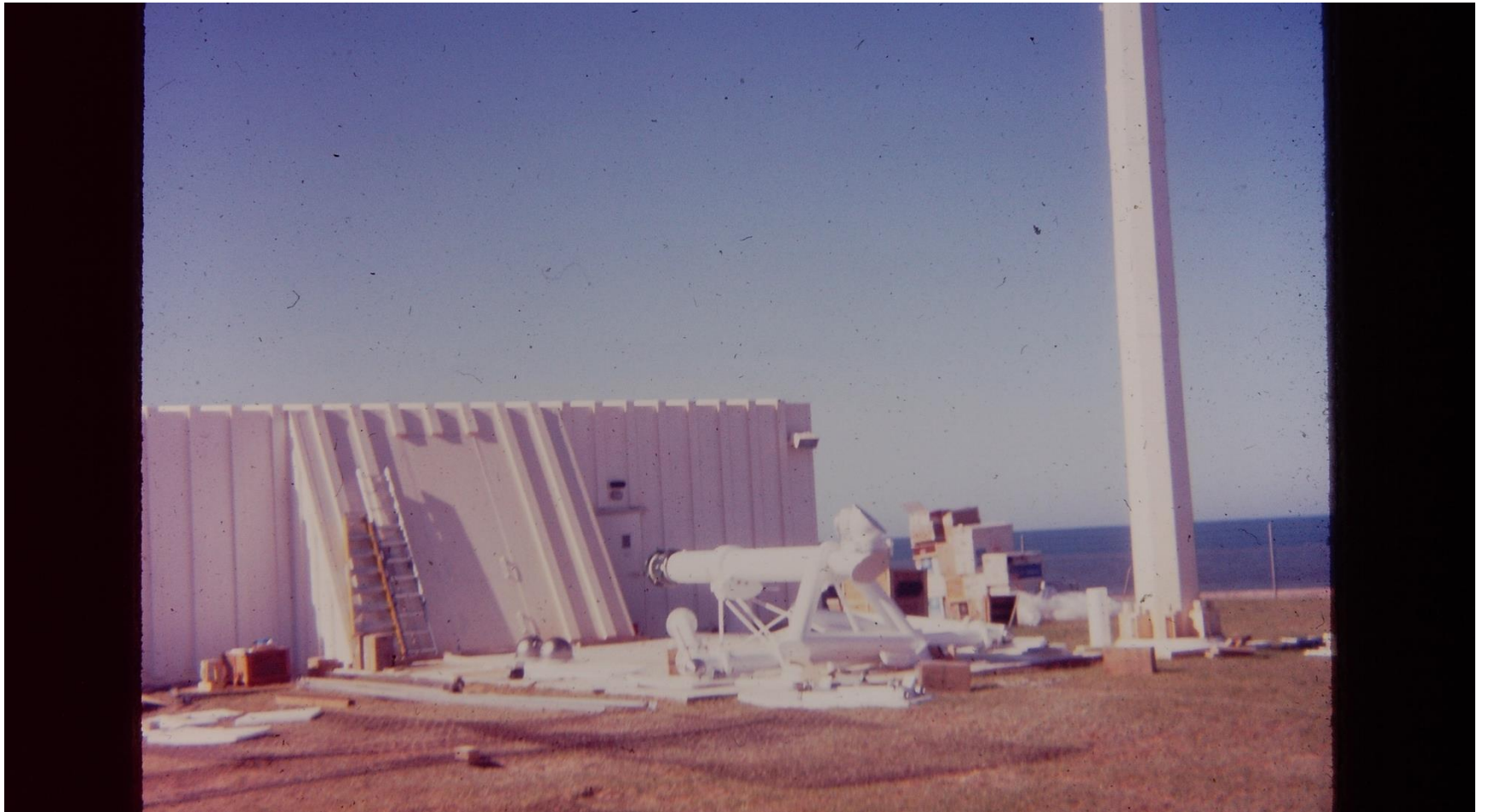




Off loading the system, 1979



“Waiting”



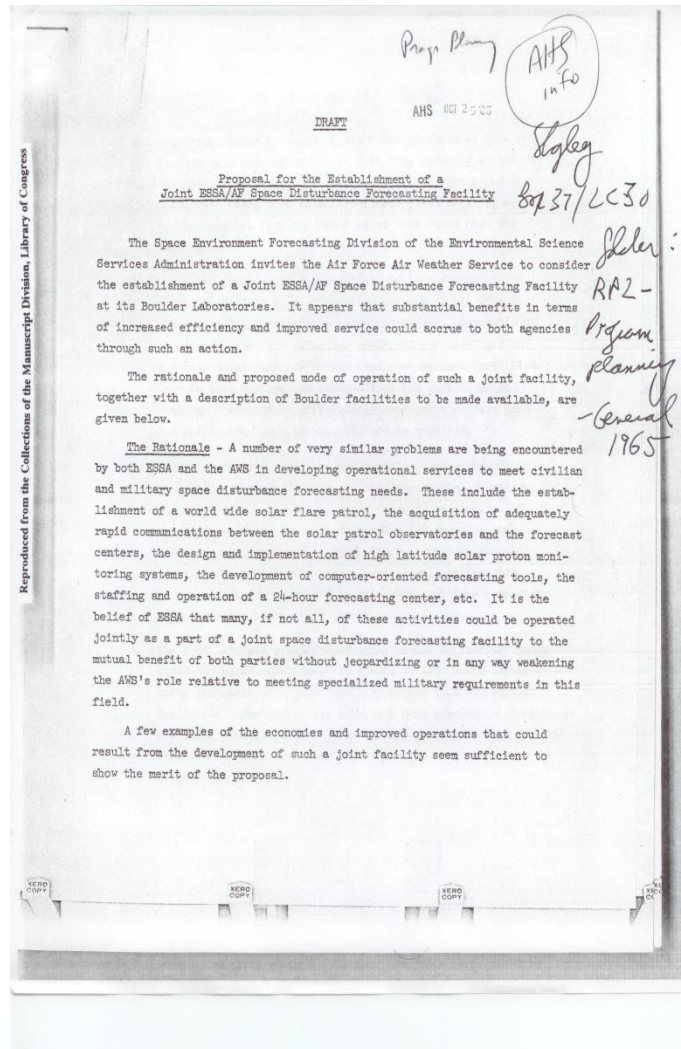
Installing the Optical System



Another type of
“Sun-Earth Connection”?



“The Marriage Proposal” (ESSA/USAF, 1965)



Joseph P. Bassi

A SCIENTIFIC PEAK



How Boulder Became a World Center
for Space and Atmospheric Science

AMERICAN METEOROLOGICAL SOCIETY